UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,741	04/26/2006	Johannus Theodorus Matheus Dielissen	NL03 1295 US1	2854

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EXAMINER
CHAU, PETER P

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/577,741	DIELISSEN ET AL.
	Examiner	Art Unit
	PETER CHAU	2419

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2008*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 November 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some *   c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Acknowledgement receipt of amendment filed on 14 November 2008. Claims 1-6

were amended.

Drawings

2.   The amended drawings filed on 14 November 2008 were entered and the

objection is withdrawn.

Specification

3.   The amended specification filed on 14 November 2008 was entered and the

objection and rejection is withdrawn.

Response to Arguments

4.   In response to applicant's argument that the references fail to show certain

features of applicant's invention, it is noted that the features upon which applicant relies

(i.e., the crossbar switch being arranged to receive each of the two corresponding input

queues simultaneously) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into

the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5.   In response to applicant's argument that the reference, Rijpkema, does not

disclose or suggest, an integrated circuit that amongst other patentable elements,

comprises, "at least one of the routers comprising a plurality of input ports arranged to

received input data corresponding to at least two traffic, classes, the routers further

comprising a plurality of queues, the queues being arranged to store input data

corresponding to a single traffic class, wherein the input ports are coupled to at least

two of the queues, the routers further comprising a switch, wherein the switch is

arranged to receive input from each of the plurality of queues simultaneously" as recited

in claim 1 and as similarly recited in claim 6 is in moot in view of Rijpkema and Brewer.

While Rijpkema teaches everything that the applicant claims except receiving plural

queues simultaneously in a switch, however, Brewer teaches a crossbar switch

receiving inputs from plural queues simultaneously (Brewer, col. 12 lines 55-67 to col.

13 line1). Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to modify the invention of Rijpkema with Brewer's crossbar

switching receiving from all input queues simultaneously to have information and control

being synchronized as they flow through a router system (Brewer, col. 2 lines 47-50).

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

7.   Claims 1 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. The applicant cites the phrase, "each of the plurality

of queues simultaneously." The examiner will interpret it as each of the queues in the

plurality of queues simultaneously.

8.   Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

9.   Claim 6 provides for the use of avoiding starvation of data in an integrated circuit,

but, since the claim does not set forth any steps involved in the method/process, it is

unclear what method/process applicant is intending to encompass. A claim is indefinite

where it merely recites a use without any active, positive steps delimiting how this use is

actually practiced.

Claim Rejections - 35 USC § 101

10.   Claim 6 is rejected under 35 U.S.C. 101 because the claimed recitation of a use,

without setting forth any steps involved in the process, results in an improper definition

of a process, i.e., results in a claim which is not a proper process claim under 35

U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and

Clinical Products, Ltd. v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

12.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
       obviousness or nonobviousness.

13.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

14.   **Claims 1-3 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable

over "Trade-offs in the design of a router with both guaranteed and best-effort services

for networks on chip." Rijpkema et. al. (herein after "Rijpkema") (IDS filed on 4/26/2006)

and in further view of U.S. Patent 6,711,357 to Brewer et al (hereinafter "Brewer").

15.   **As per claim 1**, while Rijpkema teaches **an integrated circuit comprising a**

network, the network comprising a plurality of routers (fig. 3 shows a network

comprising a plurality of routers**),**

at least one of the routers comprising a plurality of input ports arranged to receive input data corresponding to at least two traffic classes (fig. 8, shown is a router that has a plurality of input ports receiving data, the BQs (Best effort data queues) and GQs (guaranteed data queues) define traffic classes that are coupled to input ports),

the routers further comprising a plurality of queues, the queues being arranged to store input data corresponding to a single traffic class, wherein the input ports are coupled to at least two of the queues (fig. 8 shows BQs (Best effort data queues) and GQs (guaranteed data queues) in their own set of queues and that the input port is coupled to the BQs and GQs),

the routers further comprising a switch (fig. 8 shows a switch (crossbar)), Rijpkema does not teach **wherein the switch is arranged to receive input from each of the plurality of queues simultaneously.**

However, Brewer teaches a crossbar switch receiving input from each of the input queues simultaneously (col. 12 lines 55-67 to col. 13 line1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Rijpkema with Brewer's crossbar switching receiving from all input queues simultaneously to have information and control being synchronized as they flow through a router system (Brewer, col. 2 lines 47-50).

As per claim 6, while Rijpkema teaches **a method for avoiding starvation of data in an integrated circuit comprising a network, the network comprising a plurality of routers** (fig. 3 shows a network comprising a plurality of routers),

at least one of the routers comprising a plurality of input ports receiving input data corresponding to at least two traffic classes (fig. 8, shown is a router that has a plurality of input ports receiving data, the BQs (Best effort data queues) and GQs (guaranteed data queues) define traffic classes that are coupled to input ports),

the routers further comprising a plurality of queues, wherein the queues store input data corresponding to a single traffic class, the input ports being coupled to at least two of the queues (fig. 8 shows BQs (Best effort data queues) and GQs (guaranteed data queues) in their own set of queues and that the input port is coupled to the BQs and GQs),

the routers further comprising a switch (fig. 8 shows a switch (crossbar)), Rijpkema does not teaches **wherein the switch receives input from each of the plurality of queues simultaneously.**

However, Brewer teaches a crossbar switch receiving input from each of the input queues simultaneously (col. 12 lines 55-67 to col. 13 line1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Rijpkema with Brewer's crossbar switching receiving from all input queues simultaneously to have information and control being synchronized as they flow through a router system (Brewer, col. 2 lines 47-50).

As per claim 2, the combination of Rijpkema and Brewer teaches **the integrated circuit as claimed in claim 1, wherein** Rijpkema teaches **a first selection of the queues is arranged to store input data corresponding to a high priority traffic class, and wherein a second selection of the queues is arranged to store input data corresponding to a low priority traffic class** (fig. 8 shows the input port selecting data to be queued into two classes, BQ (Best effort data queue) and GQ (guaranteed data queue); page 295 right column line 28-30, guaranteed services would be used for critical traffic (i.e. high priority traffic class) and best-effort services used for non-critical traffic (i.e. low priority traffic class)).

As per claim 3, the combination of Rijpkema and Brewer teaches the integrated circuit as claimed in claim 2, wherein Rijpkema teaches the first selection is deployed to provide guaranteed communication services in the network, and wherein the second selection is deployed to provide best-effort communication services in the network (fig. 8 shows the input port selecting data to be queued into two classes, BQ (Best effort data queue) and GQ (guaranteed data queue); page 295 right column line 28-30, guaranteed services would be used for critical traffic (i.e. high priority traffic class) and best-effort services used for non-critical traffic (i.e. low priority traffic class)).

16.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rijpkema and Brewer and in further view of U.S. PGPub 2009/0010152 to Ofek et al (hereinafter "Ofek") and in further view of U.S. Patent 6,831,922 to Shimada.

As per claim 4, while the combination of Rijpkema and Brewer teaches the integrated circuit as claimed in claim 1, the combination of Rijpkema and Brewer does not, but Ofek teaches further comprising a controller which is coupled to the input ports and coupled to the switch (paragraph [0126], discloses each input ports is coupled to the switch scheduler (controller) and to the switching fabric (switch)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inventions of Rijpkema and Brewer with Ofek's

controller coupled to the input ports and a switch to have switching of data packets in a network in a timely manner while providing low switching complexity and performance.

The combination of Rijpkema and Brewer and Ofek does not teach, but Shimada teaches a **controller comprising a plurality of arbiters, wherein the arbiters of at least one of the traffic classes implement a predetermined schedule (**col. 2 lines 36-37, discloses fig. 2 showing a block diagram showing what is inside a contention priority control circuit (controller); fig. 2 shows a plurality of arbiters; abstract, discloses a contention priority control circuit (controller) which receives data of two classes and arbitrates contention between output requests for outputting these data to a bus on the basis of priority classes (scheduling for output based on priority classes) and arbiters; col. 3 lines 27-36, discloses each arbiter receives an output request and selects a port under rotational priority control; col. 7 lines 1-3, discloses shifting the priority separately for high and low-priority classes by rotational scheduling. Under the rotational scheduling, the arbiters outputs high or low-priority cells**).**

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Rijpkema and Brewer and Ofek with Shimada's controller with plural arbiters for scheduling output to arbitrate cell output contention between output ports when the ring arbiter has cell buffers for two priority classes (Shimada, col. 1 lines 50-57).

17.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rijpkema and Brewer and in further view of U.S. Patent 5,046,000 to Hsu.

As per claim 5, while the combination of Rijpkema and Brewer teaches **the integrated circuit as claimed in claim 1,** the combination of Rijpkema and Brewer does not, but Hsu teaches **wherein the switch comprises a plurality of multiplexers, each multiplexers being coupled to plurality of queues and each one of the multiplexers being arranged to accept as input the input data stored in the queues (**col. 3 lines 38-57, discloses a switch comprising a plurality of multiplexers coupled to an output and discussing only the upper half of the switch since the other half is identical to the upper half and the upper half multiplexer directs one of the incoming messages to queue FIFO; col. 4 lines 41-45, discloses extracting information from the queue FIFO and outputting it via a multiplexer**).**

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Rijpkema and Brewer with Hsu's switch containing a plurality of multiplexer being coupled to an output and receives from queues to have a high speed data combining switch (col. 1 lines 6-9).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER CHAU whose telephone number is (571)270-7152. The examiner can normally be reached on Monday-Friday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. C./
Examiner, Art Unit 2419

/Daniel J. Ryman/
Supervisory Patent Examiner, Art Unit 2419